High Schools That Work

Course Description Guide

(including instructions for classifying courses)

Updated in 2009

Southern Regional Education Board

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The Importance of Collecting and Analyzing Transcript Data

Much of our strategy for improving the achievement and life prospects of our students depends on encouraging students to take more challenging courses in school. Once students graduate, few of us have the time to determine if increasing numbers of students completed more challenging courses. Fewer still have the time to determine if the strategy worked: Did students who took more challenging courses score higher on the assessment than those who did not take such courses? Yet, this information is important in demonstrating to parents, administrators and ourselves that progress is being made and that our schools are making a difference.

The Course Experience section of the Student Survey is where course-taking information is collected for analysis. This information is reported with assessment performance and is also used to identify students who qualify for the *HSTW* Award of Educational Achievement. SREB encourages school staff to complete this section of the survey for students before the assessment begins. Doing so may yield more accurate data and will reduce the amount of time necessary for students to complete the survey.

In order to prepare for this section of the survey, school staff will need to obtain a copy of the transcript (or course history) and current course schedule (including spring courses) for each student participating in the assessment. Ensure grades for the previous marking period have been posted before transcripts are retrieved and prepared for the assessment.

It is likely that you will need to match your school's course titles to common SREB titles, as the wording may differ. This allows us to gather this information across a network of states. To do so, you will need this Course Matching Guide and the Course Matching Chart. Instructions for classifying and matching courses and collecting student transcripts or course histories follow.

Course Classifying and Matching Instructions

1. Course classification and course matching should be completed between October and December 2009.
2. The test coordinator should ask the department heads or curriculum chairs in English/language arts, mathematics and science to identify and classify high school courses by using the Course Description Guide and Course Matching Chart.
    a. The Course Description Guide contains descriptions of high school courses according to nationally accepted definitions that are routinely used in research and analysis efforts.
    b. The Course Matching Chart is the document that your department heads will complete. It will identify your school's courses that are equivalent to SREB's course titles.
3. Give each department head or curriculum chair in English/language arts, mathematics and science a copy of this Course Description Guide (or the appropriate parts, including the general instructions) and the Course Matching Chart. They are in the best position to review each course description and to write local course titles in the blanks below each description (in the Course Description Guide).
4. Department chairs should include the names of courses offered over the past four years on the Course Matching Chart (starting with the 2006-2007 school year). This ensures the course names date back to participating students' first year of high school.
5. Set an early deadline for department chairs to complete their work, remembering that the process should be complete by December 2009. As the deadline approaches, drop them a note as a friendly reminder. This will help maintain your schedule.
6. After the department chairs complete their review of the Course Description Guide, consolidate their work into one final copy of the Course Matching Chart with all the appropriate course titles for each subject area.
7. Keep the final Course Matching Chart in a safe location until the start of testing when students will need this information to complete the Course Experience portion of the Student Survey. Alternatively, school staff can use the course matching chart and student transcripts or course histories to complete this section of the survey for students once answer documents have been assigned.
8. Prior to administering the assessment, make one copy of the Course Matching Chart for each participating student. Staple the Course Matching Chart to the copy of each student's transcript (or course history) and the list of current courses. See the following section of this guide for information on gathering student transcripts and current course schedules.
9. If school personnel will complete the Course Experience portion of the survey for students, step seven and eight will not be necessary. (See the Test Administration Guide for more information on this option.)

Steps for Collecting Transcripts and/or Course Histories

1. Student transcripts should be collected as soon as possible prior to administering the assessment (i.e., November – December, 2009).

2. A copy of the official student transcript or course history should be made for each student who will be assessed and the five alternates. A list of courses each student currently is taking, or will take, is also necessary.

3. Once the student roster is complete, the appropriate school official should be notified that transcripts should be prepared for students selected to participate in the assessment. Because transcript/counselor offices are often busy updating student records with grades from the previous marking period and fulfilling transcript requests for college applications at this time of year, it is important to give them as much notice as possible. You should provide them with a well-marked copy of the student roster to minimize the amount of time it takes to find the necessary documents. You will need them to provide you with:

    a. A copy of the transcript or course history for each student listed on the student roster.

    b. A list of the courses each student currently is taking or will take in the spring.

4. Make sure school officials know that students will use these documents to record their course experience information on a survey. Students have access to this information in virtually every state. Contact your school principal, *HSTW* State Coordinator or SREB for assistance if you experience difficulty in obtaining these records.

5. If students will complete the Course Experience survey themselves, arrange student transcripts and course schedules by assessment session to facilitate distribution during the test.

General Instructions for Course Matching

The *HSTW* Assessment will be administered to high school seniors between January 29 and February 19, 2010. The assessment consists of subject tests in reading, mathematics and science and a student survey. Section 1 of the student survey is a Course Experience Survey. Students are asked to use their transcripts to identify the mathematics, English/language arts and science courses they took in grades nine through twelve (including courses they expect to complete by the end of grade 12).

Course matching facilitates the transcript coding process for students by matching local course names to a common set of SREB course titles. The process may be completed at the school or district level, depending on local circumstances. At the school level, it may be completed by school administrators, counselors or individual department heads. Course matching should take place between October and December, 2009. The Course Description Guide and Course Matching Chart should be returned to the test coordinator upon completion.

Please follow these steps to complete the course matching process:

1. Review the course descriptions in this guide and write the names of courses that contain the same content and level of expectations for students in your school or district in the blanks below each description. Please include the names of any courses offered over the last four years (starting with the 2006-2007 school year). This ensures that the course titles you provide date back to participating students' first year of high school.

2. After writing applicable course titles in the blanks in this guide, complete the Course Matching Chart. It is important to be as thorough as possible. This chart will be used as a reference by students or school personnel as they complete Section 1 of the student survey.

3. Ensure each local school course appears under only one SREB generic heading. For example, a college-preparatory Algebra I course should only appear under "Algebra I: Regular, Advanced or College-Prep" and should not also appear under other Algebra I headings. When completing the course history section of the student survey, students should only mark one "yes" for each course taken.

Mathematics Course Titles and Course Descriptions

This subject area encompasses courses that concern the science of numbers and their operations, interrelations, combinations, generalizations and abstractions; space configurations and their structure, measurement and transformations; and the application of mathematical thought to related endeavors.

Mathematics: Basic, Fundamental, Practical, Essential, General, Consumer or Business

Basic, Fundamental, Practical or Essential Mathematics courses emphasize attainment of basic mathematics skills for students who have not yet mastered these skills. Basic Mathematics includes the study of general mathematics topics: arithmetic using rational numbers, numeration systems and place value, basic geometry, basic statistics and application of these skills to real-world problems and situations.

General Mathematics courses reinforce basic mathematics skills for students who have previously attained them and extend these skills to further applications and concepts. General Mathematics includes the study of general mathematics topics, such as arithmetic using rational numbers, basic geometry, basic statistics and application of these skills to real-world problems and situations. Topics may also include ratio and proportion, solving and graphing simple equations and operations with real numbers. This course may refer to Integrated Mathematics courses that do not count as required college-preparatory-level mathematics courses at your state's four-year college or universities.

Consumer Mathematics courses reinforce general mathematics skills for students who have previously attained them, may extend these skills to include some pre-algebra and algebra topics and use these skills in a wide variety of practical, consumer, business and occupational applications. Consumer Mathematics courses reinforce general mathematics topics, such as arithmetic using rational numbers, fractions and percents, measurement and basic statistics.

Business Mathematics courses reinforce general mathematics skills for students who have previously attained them, emphasize speed and accuracy in computations, may extend general mathematics skills to cover additional mathematics concepts and use these skills in a variety of business applications. Business Mathematics reinforces general mathematics topics such as arithmetic using rational numbers, measurement and basic statistics. In addition, these courses apply these skills to business problems and situations; applications might include wages, hourly rates, payroll deductions, sales, receipts, accounts payable and receivable, financial reports, discounts and interest.

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Mathematics: Applied or Technical (First Year)

This category should be used for the first half of the curriculum developed by the Center for Occupational Research and Development (CORD) or for other mathematics courses teaching algebraic concepts with an emphasis on occupationally-related applications and problem-solving techniques. CORD's Applied Mathematics course covers the following topics: estimation; measurement; working with data (including the use of graphs, charts and tables); lines and angles; two- and three-dimensional figures; ratio and proportion; scale drawings; signed numbers and vectors; scientific notation; precision, accuracy and tolerance; exponents and radicals; formulas; linear and nonlinear equations; statistics and probability; right-triangle relationships; and trigonometric functions.

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Mathematics: Applied Mathematics or Technical Mathematics (Second Year)

This category should be used for the second half of the curriculum developed by the CORD or for other mathematics courses teaching algebraic concepts with an emphasis on occupationally-related applications and problem-solving techniques. With the completion of this second year of Applied Mathematics, students typically receive credit for Algebra I. (See the above description for the topics included in CORD's Applied Mathematics course.)

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Mathematics: Integrated

The specific content of Integrated Mathematics courses varies, but emanates from the suggestions made by the National Council of Teachers of Mathematics (NCTM). A sequential, multi-year program of study, Integrated Mathematics courses emphasize the teaching of mathematics as problem solving, communication and reasoning. Intended to replace the traditional sequence of secondary mathematics courses, the Integrated Mathematics sequence covers the following topics: algebra, functions, geometry from both a synthetic and an algebraic perspective, trigonometry, statistics and probability, discrete mathematics, the conceptual underpinnings of calculus and mathematical structure. There are courses that fulfill the mathematics requirements or college-preparatory-level courses at your state's four-year colleges or universities.

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Pre-Algebra or Algebra Foundations

These courses are generally intended to provide an extra year of study for students who have attained general mathematics objectives but are not yet ready to enter Algebra I. Pre-Algebra, Algebra Foundations or Introduction to Algebra courses cover topics such as properties of rational numbers (i.e., number theory), ratio, proportion, estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas and solving first-degree equations and inequalities.

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Algebra I: Basic, Elementary, I-A or I-B

Basic Algebra I and Elementary Algebra courses are designed for students who may benefit from a slightly slower pace or additional reinforcement of their current mathematics skills. However, most of the typical algebraic concepts are covered, such as properties and operations of the real number system, evaluating rational algebraic expressions, solving and graphing first degree equations and inequalities, and the factoring of polynomials.

Algebra I-A and I-B are two courses in a two-year sequence of Algebra I. The first year generally covers topics such as the properties of rational numbers, ratio, proportion, estimation, exponents and radicals, the rectangular coordinate system, sets and logic, formulas and solving first degree equations and inequalities. The second year covers the study of properties of the real number system and operations, evaluating rational algebraic expressions, solving and graphing first degree equations and inequalities, translating word problems into equations, operations with and factoring of polynomials and solving simple quadratics.

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Algebra I: Regular, Advanced or College-Prep

Algebra I courses include the study of properties and operations of the real number system, evaluating rational algebraic expressions, solving and graphing first degree equations and inequalities, translating word problems into equations, operations with and factoring of polynomials and solving simple quadratic equations. These courses may include solving systems of linear equations and inequalities and solving and graphing more complex quadratic equations.

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Algebra II

Algebra II course topics include field properties and theorems; set theory; operations with rational and irrational expressions; factoring of rational expressions; in-depth study of linear equations and inequalities; quadratic equations; solving systems of linear and quadratic equations; graphing of constant, linear and quadratic equations; properties of higher degree equations; and operations with rational and irrational exponents.

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Algebra III: (Including Trigonometry, Mathematics Analysis or Advanced Mathematics)

Trigonometry courses prepare students for eventual work in calculus and include the study the following topics: trigonometric and circular functions; their inverses and graphs; relations among the parts of a triangle; trigonometric identities and equations; solutions of right and oblique triangles; and complex numbers.

Algebra III courses review and extend algebraic concepts for students who have already taken Algebra II. Course topics include (but are not limited to) operations with rational and irrational expressions, factoring of rational expressions, linear equations and inequalities, quadratic equations, solving systems of linear and quadratic equations, properties of higher degree equations and operations with rational and irrational exponents. The courses may introduce topics in discrete mathematics, such as elementary probability and statistics including binomial expansion; matrices and determinants; and sequences and series.

Mathematics Analysis courses include the study of polynomial, logarithmic, exponential and rational functions and their graphs; vectors; set theory; Boolean algebra and symbolic logic; mathematical induction; matrix algebra; sequences and series; and limits and continuity. This category should also be used for other advanced mathematics courses such as Number Theory, Linear Algebra and Discrete Mathematics.

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Geometry

Geometry courses, emphasizing an abstract, formal approach to the study of geometry, include topics such as properties of plane and solid figures; deductive methods of reasoning and use of logic; geometry as an axiomatic system including the study of postulates, theorems and formal proofs; rules of congruence, similarity, parallelism and perpendicularity; and rules of angle measurement in triangles, including trigonometry, coordinate geometry and transformational geometry.

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Pre-Calculus or Calculus

Pre-calculus courses combine the study of trigonometry, elementary functions, analytic geometry and mathematics analysis topics as preparation for calculus. Topics include the study of complex numbers; polynomial, logarithmic, exponential, rational, right trigonometric and circular functions, trigonometric identities and equations; vectors; the polar coordinate system; conic sections; Boolean algebra and symbolic logic; matrix algebra; sequences and series; and limits and continuity. Calculus includes the study of derivatives, antiderivatives, differentiation, integration, the definite and indefinite integral and applications of calculus. Advanced Placement Calculus (AB or BC) should not be included in this section.

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Calculus: Advanced Placement (AB or BC)

Advanced Placement Calculus AB or BC, designed by The College Board, parallels a college-level calculus course and is concerned with developing students' understanding of the concepts of calculus and providing experience with its methods and applications.

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Statistics

Statistics courses focus on the science and practice of collecting, organizing and interpreting numerical data in order to describe certain characteristics of a particular group. Four broad themes dominate the study of statistics: data exploration; probability theory; experimental design; and statistical inference. Topics related to these themes should be studied in the context of real-world applications, with technology serving as a tool for investigating and illustrating fundamental statistical concepts. Advanced Placement Statistics should not be included in this section.

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Statistics: Advanced Placement

Advanced Placement Statistics, designed by The College Board, parallels an introductory college statistics course. Course content focuses on exploring data by describing patterns and departures from patterns; sampling and experimentation by planning and conducting studies; anticipating patterns by exploring random phenomena using probability and simulation; and statistical inference by estimating population parameters and testing hypotheses.

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Other Advanced Mathematics

Advanced and college-preparatory mathematics courses not covered by previous categories should be included here. Examples may include an advanced calculus course beyond the content of Calculus I or AP Calculus or other college-level mathematics courses.

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English/Language Arts Course Titles and Course Descriptions

This subject area encompasses courses that concern primarily the use of the English language as it is written, read, spoken and understood; courses included here may combine these goals, or may deal with them separately, as individual courses in composition, reading, speech or literature.

Note to English/Language Arts Department Head:

The predominant English language instructional style seems to be one in which all four communication aspects of the English language (reading, writing, speaking and listening) are taught in a holistic manner all four years of high school. Students typically read literature selections and write essays and compositions on topics generated from those readings. We realize that many schools emphasize one aspect (literature or composition) in particular semesters and name their courses accordingly. However, in order to simplify this process, this distinction has been eliminated.

You will notice that the descriptions within each grade level's English/language arts courses are identical, except for the general descriptors directly before the course title. Defining these terms has been deliberately avoided, because schools across the country have different levels of progression and specific performance standards or competencies for the various levels at each grade level. We wanted to avoid problems of connotation and interpretation. However, your general guidelines are thus:

- **Functional, basic, practical or skills courses:** Designed for students who are reading or writing below grade level and whose language arts skills need substantial improvement.
- **Standard, general, regular or mixed-group courses:** Acceptable for college entrance but may not enable a student to receive a "college-preparatory" diploma (if one is offered).
- **Accelerated, academic, college-prep or honors courses:** Require students to read 10-15 books in and out of class, make presentations, write short assignments daily and complete at least one major research paper.
- **Advanced Placement courses:** Designed by The College Board, these courses parallel college-level freshman English courses and emphasize craftsmanship in composition and the critical evaluation of literature.

English 9: Basic, Functional, Practical or Skills

This level includes English/Language Arts I (ninth grade) for students who may be reading or writing below grade level. These courses build upon the students' prior knowledge of grammar, vocabulary, word usage and mechanics of writing and usually include the four aspects of language use: reading, writing, speaking and listening. Usually, the various genres of literature are introduced and defined, with writing exercises often linked to reading selections.

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English 9: Standard, General, Regular or Mixed-Group

This level includes English/Language Arts I (ninth grade) courses that would normally be acceptable for college entrance, but may not enable the student to receive a "college-preparatory" diploma (if one is offered). These courses build upon the students' prior knowledge of grammar, vocabulary, word usage and mechanics of writing and usually include the four aspects of language use: reading, writing, speaking and listening. Usually, the various genres of literature are introduced and defined, with writing exercises often linked to reading selections.

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English 9: Accelerated, Academic, College-Prep or Honors

This level includes English/Language Arts I (9th grade) courses build upon the students' prior knowledge of grammar, vocabulary, word usage, mechanics of writing and usually include the four aspects of language use: reading, writing, speaking and listening. Usually, the various genres of literature are introduced and defined, with writing exercises often linked to reading selections.

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English 10: Basic, Functional, Practical or Skills

English/Language Arts II (10th grade) is for students who may be reading or writing below grade level. These courses usually offer a balanced focus on composition and literature. Typically, students learn about the alternate aims and audiences of written compositions by writing persuasive, critical and creative multi-paragraph thematic essays and compositions. The study of literature encompasses various genres as students improve their reading rate and comprehension and develop the skills to determine authors' intents and themes and to recognize the techniques employed by authors to achieve their goals.

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English 10: Standard, General, Regular or Mixed-Group

This level includes English/Language Arts II (10th grade) courses that would normally be acceptable for college entrance, but may not enable the student to receive a "college-preparatory" diploma (if one is offered). These courses usually offer a balanced focus on composition and literature. Typically, students learn about the alternate aims and audiences of written compositions by writing persuasive, critical and creative multi-paragraph thematic essays and compositions. The study of literature encompasses various genres as students improve their reading rate and comprehension and develop the skills to determine authors' intents and themes and to recognize the techniques employed by authors to achieve their goals.

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English 10: Accelerated, Academic, College-Prep or Honors

English/Language Arts II (10th grade) courses usually offer a balanced focus on composition and literature. Typically, students learn about the alternate aims and audiences of written compositions by writing persuasive, critical and creative multi-paragraph thematic essays and compositions. The study of literature encompasses various genres as students improve their reading rate and comprehension and develop the skills to determine authors' intents and themes and to recognize the techniques employed by authors to achieve their goals.

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English 11: Basic, Functional, Practical or Skills

English/Language Arts III (11th grade) is for students who may be reading or writing below grade level. These courses continue to develop students' writing skills, emphasizing clear, logical writing patterns, word choice and usage, as students write essays and begin to learn the techniques of writing research papers. Students continue to read works of literature, which often form the backbone of the writing assignments. Literary conventions and stylistic devices may receive greater emphasis than in previous courses. Preparation for the PSAT may be included.

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English 11: Standard, General, Regular or Mixed-Group

This level includes English/Language Arts III (11th grade) courses that would normally be acceptable for college entrance, but may not enable the student to receive a "college-preparatory" diploma (if one is offered). These courses continue to develop students' writing skills, emphasizing clear, logical writing patterns, word choice and usage, as students write essays and begin to learn the techniques of writing research papers. Students continue to read works of literature, which often form the backbone of the writing assignments. Literary conventions and stylistic devices may receive greater emphasis than in previous courses. Preparation for the PSAT may be included.

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English 11: Tech-Prep, Applied or Applied Communications

Tech-Prep English, Applied English or Applied Communications 11 continue to develop students' writing skills, but in a manner that emphasizes the English language as applied in the "real world." The study of literature is typically included (in accordance with state guidelines), but the emphasis is usually on the practical application of communication as a business tool and may focus on technical reports and manuals, business letters and résumés, as opposed to the course being designed around scholarly and literary applications. Typically, these courses include some or all of the 15 modules developed by the Agency for Instructional Technology (AIT). Gathering and using information, problem solving, presentation, evaluation, communicating with different audiences and occupationally-specific topics are included in courses using AIT's curriculum.

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English 11: Accelerated, Academic, College-Prep or Honors

English/Language Arts III (11th grade) courses continue to develop students' writing skills, emphasizing clear, logical writing patterns, word choice and usage, as students write essays and begin to learn the techniques of writing research papers. Students continue to read works of literature, which often form the backbone of the writing assignments. Literary conventions and stylistic devices may receive greater emphasis than in previous courses. Preparation for the PSAT may be included.

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English 11: Advanced Placement

Advanced Placement English courses, designed by The College Board, parallel college-level freshman English and emphasize craftsmanship in composition and the critical evaluation of literature. Typically, Advanced Placement English Language and Composition is taught in 11th grade while Advanced Placement English Literature and Composition is taught in 12th grade.

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English 12: Basic, Functional, Practical or Skills

English/Language Arts IV (12th grade) is for students who may be reading or writing below grade level. These courses blend composition and literature into a cohesive whole, as students write critical and comparative analyses of selected literature. Typically, multi-paragraph essays predominate as the form of student composition, but one or more major research papers may also be written.

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English 12: Standard, General, Regular or Mixed-Group

English/Language Arts IV (12th grade) courses normally would be acceptable for college entrance, but may not enable the student to receive a "college-preparatory" diploma (if one is offered). These courses blend composition and literature into a cohesive whole, as students write critical and comparative analyses of selected literature. Typically, multi-paragraph essays predominate as the form of student composition, but one or more major research papers may also be written.

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English 12: Tech-Prep, Applied or Applied Communications

Tech-Prep English, Applied English or Applied Communication blend students' reading and writing skills, but emphasize the practical applications of communicating (reading, writing, presenting and listening). The study of literature is typically included (in accordance with state guidelines), but the course emphasis usually is on the practical application of communication as a business tool and may focus on technical reports and manuals, business documentation and correspondence, résumés and applications. Typically, these courses include some or all of the 15 modules developed by the Agency for Instructional Technology (AIT). Gathering and using information, problem solving, presentation, evaluation, communicating with different audiences and occupationally-specific topics are included in courses using AIT's curriculum.

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English 12: Accelerated, Academic, College-Prep or Honors

English/Language Arts IV (12th grade) courses blend composition and literature into a cohesive whole, as students write critical and comparative analyses of selected literature. Typically, multi-paragraph essays predominate as the form of student composition, but one or more major research papers may also be written.

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English 12: Advanced Placement

Advanced Placement English courses, designed by The College Board, parallel college-level freshman English and emphasize craftsmanship in composition and the critical evaluation of literature. Typically, Advanced Placement English Language and Composition is taught in 11th grade while Advanced Placement English Literature and Composition is taught in 12th grade.

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Journalism

Journalism courses typically are associated with the production of a school newspaper, yearbook or literary magazine; therefore, they emphasize not only writing style and technique, but also production values and organization. Beginning journalism courses introduce students to the concepts of news worthiness and press responsibility; develop students' skills in writing and editing stories, headlines and captions; and teach students the basics of production design, layout and printing of a publication. Advanced students learn and practice more refined journalistic techniques, participate to a greater extent in the formation and/or management of the production team and gain experience in critical evaluation of story content and the publication as a whole. Photography and photojournalism skills may be included.

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Debate (including Speech and Public Speaking courses)

Debate courses offer students the opportunity to learn how to employ oral skills effectively in formal and informal situations. Logic and reasoning, the organization of thought and supporting materials and effective presentation of one's voice and body are the skills imparted in forensics courses. Often linked to an extracurricular program, numerous public speaking situations are introduced, and students learn the methods, aims and styles of a variety of events. Participation in competition usually is encouraged.

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Other Advanced English or Language Arts

Advanced or college-preparatory English/language arts courses not covered by previous categories should be included here. Examples may include advanced language and literature courses beyond the scope of advanced or college-preparatory English 9, 10, 11 or 12. College-level courses can also be placed here.

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Science Course Titles and Course Descriptions

This subject area encompasses courses that concern bodies of knowledge about the natural world and its phenomena, including the study of living organisms and life processes as well as non-living materials and the laws that govern them.

Note to Science Department Head:

You will notice that the descriptions for the three Physical Science and the three Biology courses are identical, except for the general descriptors within parentheses directly under the course title. Defining these terms has been deliberately avoided, because schools across the country have different levels of progression and specific performance standards or competencies for the various levels. However, your general guidelines are thus:

- **Basic, practical or fundamental courses:** These courses have few, if any, laboratory experiments and students are not expected to use math skills other than simple computation to solve scientific problems.
- **Regular or general courses:** These classes should be acceptable for college entrance, but may not enable a student to receive a "college-preparatory" diploma (if one is offered). These courses are usually considered lab courses, are acceptable to colleges for their laboratory science requirements and include problem solving using mathematics.
- **Advanced, academic, college-prep or honors courses:** Laboratory experimentation is integral to these classes and students often use mathematics when problem solving.
- **Advanced Placement courses:** Designed by The College Board, these courses parallel college-level freshman science courses.

General Science

General Science courses involve a balanced introductory study of several branches of science, including biological and physical science. Typically, general science courses emphasize the scientific process of inquiry and the practical applications of scientific phenomena and discoveries. General science courses may also include an investigation of the effect of technology on life on earth. Count Integrated Science under this title if such a course does not count as a required college-preparatory-level science course at your state's four-year colleges or universities.

Applied Science: Principles of Technology or Applied Physics (First Year)

Principles of Technology courses, designed by CORD and AIT, teach traditional physics concepts in the context of their relationship to four energy systems—mechanical, fluid, electrical and thermal. The curriculum focuses on the study of forces and laws of nature and includes the study of the following and their application to modern technology: force, work, rate, resistance, energy, power, force transformers, momentum, waves and vibrations, energy converters, transducers, radiation, light and optical systems and time constants. Demonstrations, mathematics labs and applied laboratory experiments are an integral part of the 14-unit Principles of Technology curriculum. These courses enable students to gain a solid foundation for careers in electronics, robotics, telecommunications and other technological fields.

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Applied Science: Principles of Technology or Applied Physics (Second Year)

Principles of Technology, designed by CORD and AIT, teaches traditional physics concepts in the context off their relationship to four energy systems — mechanical, fluid, electrical and thermal. The curriculum focuses on the study of forces and laws of nature and includes the study the following and their application to modern technology: force, work, rate, resistance, energy, power, force transformers, momentum, waves and vibrations, energy converters, transducers, radiation, light and optical systems and time constants. Demonstrations, math labs and applied laboratory experiments are an integral part of the 14-unit Principles of Technology curriculum. These courses enable students to gain a solid foundation for careers in electronics, robotics, telecommunications and other technological fields.

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Applied Science: Applied Biology or Applied Chemistry

Applied Biology/Chemistry courses (as designed by CORD) integrate biology and chemistry into a unified domain for study and present the resulting body of knowledge in the context of work, home, society and the environment, emphasizing field and laboratory activities. Topics include natural resources, water, air and other gases, nutrition, disease and wellness, plant growth and reproduction, life processes, microorganisms, synthetic materials, waste and waste management and the community of life.

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Integrated Science

The specific content of Integrated Science courses varies, but emanates from suggestions made by the American Association for the Advancement of Science (AAAS) and the National Association for the Advancement of Science. Typically a multi-year program of study, Integrated Science courses draw from the principles of several scientific specialties—earth science, physical science, biology, chemistry and physics—and organize the material around thematic units. Common themes include systems, models, energy, patterns, change and constancy. Appropriate aspects from each specialty are used to investigate applications of the theme. There are courses that fulfill the science requirements as college-preparatory-level courses at your state's four-year colleges or universities.

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Life Science

Life Science courses provide students with a basic understanding of living organisms. Topics typically include basic biological functions and systems, identification and classification of types of organisms and the similarities and differences (e.g., structure, function) between various life forms.

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Earth Science

Earth Science courses offer insight into the environment on Earth and the Earth's environment in space. While teaching the concepts and principles essential to an understanding of the dynamics and history of the Earth, the following topics may be explored: oceanography, geology, astronomy and meteorology.

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Environmental Science

Environmental Science courses examine the mutual relationships between organisms and their environment. In studying the interrelationships among plants, animals and humans, the following subjects may be covered: photosynthesis, recycling and regeneration, ecosystems, population and growth studies, pollution and conservation of natural resources. Advanced Placement Environmental Science should not be included here.

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Environmental Science: Advanced Placement

Advanced Placement Environmental Science, designed by The College Board, parallels a one-semester introductory college environmental science course. It provides students with the scientific principles, concepts, and methodologies required to understand the inter-relationships of the natural world, to identify and analyze environmental problems both natural and human-made, to evaluate the relative risks associated with these problems, and to examine alternative solutions for resolving or preventing them.

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Physical Science: Basic, Practical or Fundamental

Physical Science courses involve the study of the structures and states of matter. Typically (but not always) in an introductory survey course, topics covered may include forms of energy, wave phenomena, electromagnetism, and physical and chemical interactions.

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Physical Science: Regular or General

Physical Science courses involve the study of the structures and states of matter. Typically (but not always) in an introductory survey course, topics covered may include forms of energy, wave phenomena, electromagnetism, and physical and chemical interactions.

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Physical Science: Advanced, Academic, College-Prep or Honors

Physical Science courses involve the study of the structures and states of matter. Typically (but not always) in an introductory survey course, topics covered may include forms of energy, wave phenomena, electromagnetism and physical and chemical interactions.

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Biology: Basic, Practical or Fundamental

Biology courses are designed to provide information regarding the fundamental concepts of life and life processes. Topics covered include (but are not restricted to) cell structure and function, general plant and animal physiology, genetics and taxonomy.

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Biology: Regular or General

Biology courses are designed to provide information regarding the fundamental concepts of life and life processes. Topics covered include (but are not restricted to) cell structure and function, general plant and animal physiology, genetics and taxonomy.

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Biology: Advanced, Academic, College-Prep or Honors

Biology courses are designed to provide information regarding the fundamental concepts of life and life processes. Topics covered include (but are not restricted to) cell structure and function, general plant and animal physiology, genetics and taxonomy. Advanced Placement Biology should not be included here.

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Biology: Advanced Placement

Advanced Placement Biology, designed by The College Board, parallels a two-semester college introductory biology course. It differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the type of laboratory work done by students, and the time and effort required by students.

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Biology II

Biology II courses cover biological systems in more detail. Topics that may be explored include cell organization, function and reproduction; energy transformation; human anatomy and physiology; and organisms' evolution and adaptation. These concepts are typically studied on a college level. Advanced Placement Biology should not be included here.

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Anatomy and Physiology

Usually taken after a first-year Biology course, Anatomy and Physiology courses present the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (e.g., skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous) and may dissect mammals.

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Chemistry: Basic or General

Basic chemistry courses involve the composition, properties and reactions of substances. The behaviors of solids, liquids and gases; acid/base and oxidation/ reduction reactions; and atomic structure are typical concepts explored in Chemistry courses. Chemical formulas and equations and nuclear reactions are also studied.

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Chemistry: Advanced, Academic, College-Prep or Honors

Honors or College-prep Chemistry courses involve the composition, properties and reactions of substances. The behaviors of solids, liquids and gases; acid/base and oxidation/ reduction reactions; and atomic structure are typical concepts explored in Chemistry courses. Chemical formulas and equations and nuclear reactions are also studied. Advanced Placement Chemistry should not be included here.

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Chemistry: Advanced Placement

Advanced Placement Chemistry, designed by The College Board, parallels a first-year college general chemistry course. It differs qualitatively from the usual first high school course in chemistry with respect to the kind of textbook used, the topics covered, the emphasis on chemical calculations and the mathematical formulation of principles, and the kind of laboratory work done by students. Quantitative differences appear in the number of topics treated, the time spent on the course by students, and the nature and the variety of experiments done in the laboratory.

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Physics

Physics courses involve the study of the forces and laws of nature affecting matter: equilibrium, motion, momentum and the relationships between matter and energy. The study of physics includes examination of sound, light, magnetic and electric phenomena. (All types and levels of Physics courses should be included here except CORD's Principles of Technology and Advanced Placement Physics.) Advanced Placement Physics should not be included here.

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Physics: Advanced Placement B

Advanced Placement Physics B, designed by The College Board, parallels a first-year college physics course. It covers topics in mechanics, electricity and magnetism, fluid mechanics and thermal physics, waves and optics, and atomic and nuclear physics.

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Physics: Advanced Placement (C: Electricity and Magnetism or C: Mechanics)

Advanced Placement Physics C: Electricity and Magnetism, designed by The College Board, parallels a first-year college physics course and covers electricity and magnetism is greater depth including electrostatics; conductors, capacitors, and dielectrics; electric circuits; magnetic fields; and electromagnetism. Advanced Placement Physics C: Mechanics, designed by The College Board, parallels a first-year college physics course and covers mechanics is greater depth including kinematics; Newton's laws of motion; work, energy, and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation.

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Other Advanced Science

This category is made available for those courses offered to students who desire to study a branch (or several branches) of science in greater depth. This category is intended to capture other advanced courses such as Biochemistry or Advanced Astronomy which may not have been described adequately in the above course descriptions.

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